INTRODUCTION:

Weight management is important for good health. People who are obese generally have an added risk for high blood pressure, diabetes, heart disease, and other health problems. People who are not overweight generally have fewer health problems.

Individuals with spinal cord injury (SCI) are at an increased risk for obesity due to a number of factors after injury. For example, it is hard for many individuals to exercise at the level needed to burn excess calories. Plus, individuals usually have a slower metabolic rate (the speed at which the body burns calories) after injury than they do before injury. Thus, they need fewer calories to maintain their weight.

EatRight© is a nationally recognized weight loss program developed at the University of Alabama at Birmingham Department of Nutrition Sciences. The EatRight program offers proper diet, nutrition, exercise, and stress reduction solutions for weight management. The program is a proven success in the general population, but there is little research on a safe and effective weight management program for individuals with SCI.

OBJECTIVES:

The overall goal of this research project is to modify the established EatRight program to create and evaluate a new weight management program for individuals with SCI. To accomplish this goal, the overall objectives include:

♦ understanding the food preferences, eating patterns, and unique nutritional and health demands of individuals with SCI, mainly those who are overweight;
♦ identifying physical and lifestyle characteristics associated with obesity
♦ utilizing a small group of individuals with SCI to measure the feasibility of a new SCI EatRight© program;
♦ revising the program if needed;
♦ utilizing a larger group of individuals with SCI to examine the effectiveness and safety of the revised SCI EatRight program; and
♦ identifying factors that are successful in weight management.

PARTICIPANTS:

To date, 11 individuals with SCI have participated in this research project. Of those, 6 are men and 5 are women; 8 are white and 3 are black; 7 have paraplegia, 3 have tetraplegia, and 1 person has minimal deficit. Their ages range from 21 to 60 years, and they are all at least 1 year post injury.

The Body Mass Index (BMI) describes a person’s weight in relationship to his/her height. A BMI between 25 and 29.9 is considered overweight. A BMI of 30 or more is obese. The BMI of participants ranged between 29 to 42, so they were all overweight or obese.

METHODOLOGY & RESULTS:

This research project includes 3 phases.
1) Modification of the EatRight program

The dietary approach of the original EatRight program promotes a low fat, high complex carbohydrate diet. Because individuals with SCI have unique health care concerns due to injury, the SCI EatRight program also promotes adequate intake of protein, fiber, and fluid. These additions help improve or maintain skin integrity, bowel function, and urological status.

The original EatRight exercise program begins in week 7 of the 12-week program. The aim is to start with a limited amount of aerobic exercise and slowly increase the time spent exercising each week.

The SCI EatRight exercise program began in week 6. Because individuals with SCI are more prone to joint and muscle injury, the new program emphasized injury prevention to reduce risk to joints and muscles. Exercise was limited to stretching and strengthening. The SCI EatRight also stressed the importance of regulating body temperature during exercise. Participants were asked to drink plenty of water, keep their skin cool, and avoid heavy exercise in hot, humid weather.

The other components (behavior modification and stress management) of the original EatRight program were evaluated by a physician, dietician, therapist, psychologist, and consumer adviser. No initial modifications to these components were made. However, some text modifications were made in the accompanying instruction booklet to appeal to a target audience of persons with SCI rather than the general population.

2) Pilot test the modified program

Four individuals with SCI participated in the initial 12-week pilot group. The SCI EatRight program was then evaluated using self-administered questionnaires, physical characteristics, and medical examinations.

Based on the results of those evaluations, additional changes were made to the SCI EatRight program prior to beginning the formal test. First, the start date of the exercise sessions was moved from week 6 to week 3, which allowed more time for exercise. The exercise program was also expanded to include aerobic activities. Second, participants were given a Dual Energy X-ray Absorptiometry (DEXA) scan to measure total body fat mass. Finally, a few minor changes were made in the way the program was presented to participants. One example is that the order of classes were changed.

3) Formal test of SCI EatRight

The chart shows the effectiveness of the SCI EatRight program. On average, participants' body weight, BMI, waist size, total body fat, and blood cholesterol level were lower after 12-weeks. The range shows the greatest loss and gain made by participants in each measurement.

All participants were tested to determine if the SCI EatRight program had a negative impact on their health. Their hemoglobin, hematocrit, and albumin were measured to evaluate the safety of the program. The results show it had no adverse effects on the health of participants. The program did not promote the development or advancement of pressure sores, constipation or infection.

DISCUSSION:

The SCI EatRight program appears to be a safe and effective weight management program for individuals with spinal cord injury. They should, however, first talk to a doctor who is familiar with the unique health care concerns related to SCI before altering their current diet and exercise regimens.

Dr. Yu-ying Chen is an Assistant Professor with the Department of Physical Medicine and Rehabilitation, University of Alabama at Birmingham. Anyone interested in more information about this research project or participating in future SCI EatRight projects should contact Dr. Chen at 205-934-3329 or Yychen@uab.edu.

Acknowledgements:

The author is grateful to the University of Alabama at Birmingham Department of Nutrition Sciences and the Lakeshore Foundation for their assistance.

Related Publications: